REMARKS:

Claims 1-4 and 6-12 are in the case.

Claims 1-12 remain in the application although only claims 1 and 3-8 have been considered. The withdrawn claims 2 and 9-12 are retained since it is believed the examiner should consider these claims as well for reasons that will be set forth in detail later in these remarks.

It is noted that the subject matter of claim 5 is now present in claim 1.

Turning to the final action, the specification has been corrected to add verbatim that the substrate for the present invention has a largest dimension of at least 0.7m. Although this language was added to the specification at page 6 at the end of the paragraph starting on line 5, the examiner's attention is respectfully drawn to page 6, line 11 where it is clearly stated that the largest dimension higher than "substantially 0.7m is critical." In any case no new matter has been added since the language was clearly supported by the specification as originally filed and further supported by canceled claim 14, also as originally filed.

The examiner's attention is now directed to her final action at page 3, paragraph 4, where the examiner used what appears to be a stock paragraph concerning joint inventors. It is requested that the examiner review the Declaration and Power of Attorney filed with this application which names Jacques Schmitt as the sole inventor.

In the final action at page 3, paragraph 5, claims 1 and 3-8 have been rejected as being obvious from the combination of Japanese publication number 08-186064 to Hanada taken in view of U.S. patent 6,177,023 to Shang et al and U.S. patent 5,210,466 to Collins et al.

In order to help the examiner better assess what is taught or suggested to the person of ordinary skill in this art by Hanada, a verified translation of the Hanada reference (Japanese patent application 06-326840) has been prepared and is attached. This translation is more comprehensive and accurate than the computer generate translation formally submitted and should be considered by the examiner to evidence what Hanada actually discloses.

Referring first to paragraph [0005] of Hanada, Hanada by its own words is relevant for frequencies that are not higher than 13.56 MHz. Hanada discloses a semi-conductor processing device for wafers as clearly evident from the Hanada translation at paragraphs [0007] to [0009] and these are known to all persons with ordinary skill in the art to comprise wafers of no more than 30 cm diameter as an industry standard.

Recalling that claim 1 requires a radiofrequency generator for frequencies greater than 13.56 MHz as well as substrates with a largest dimension of at least 0.7 m, these two significant disclosures of Hanada - substrate size plus frequency spectra -, would not even allow a device constructed according to the Hanada teaching to experience the problem observed and solved according to the present invention.

Said in another way, it is physically impossible for the Hanada structure to experience standing wave effects.

The problems to be solved by Hanada are disclosed in paragraph [0012] of the translation: inhomogeneity of plasma treatment could be fixed by adjustment of gas distribution systems, however this is a complicated and exhaustive trial-and-error approach says Hanada. Introducing the insulator 21a of Hanada solved the problem of gas-distribution according to the Hanada teaching.

It has been held repeatedly that recognizing the particular problems solved by an invention is always relevant in determining obviousness. See for example, *In re Wright*, 848 F.2d 1216, 6 U.S.P.Q.2d 1959, 1962 (Fed. Cir. 1988).

To help the examiner further appreciate the import of Hanada to the person of ordinary skill in the art, the examiner's attention is directed to U.S. patent 6,631,692 to Matsuki et al as well as its published divisional patent application 2003/0089314. The cover page of each of these documents is attached. Neither represents prior art for the present application which is based on an earlier U.S. application filed September 22, 1999 which in turn enjoys priority on a still earlier Swiss application filed August 10, 1999.

These two documents will be referred to collectively as Matsuki.

Matsuki does not use a dielectric layer or an additional capacitor, but it does disclose a curved showerhead electrode. In the U.S. patent to Matsuki, at column 2, line 5, the problem of film inhomogeneities on the substrate is discussed. Matsuki goes on to disclose the reasons for this problem at column 2, lines 10-19 of the Matsuki patent. Also described in Matsuki is the same approach used by Hanada (see column 2, lines 20-28 of the U.S. patent to Matsuki) and, also interestingly, Matsuki like Hanada denies its feasibility. Matsuki thus discloses the same problem as Hanada, in the same environment (wafer processing) and also does not refer to standing wave effects because they simply do not exist in the setup of either Matsuki or Hanada.

Taking a step back and trying to determine what this would mean to the person of ordinary skill in this art, it is believed quite clear that r Hanada is not combinable with the other references cited by the examiner to reach the claimed invention in any obvious manner. Matsuki is being used here not because it is prior art (which it is not) but rather

to further evidence the perspective of the person having ordinary skill in this field.

Turning now to the secondary reference to Collins, and contrary to the examiner's interpretation of this reference, Collins does not disclose a capacitively coupled radiofrequency plasma reactor. The examiner is requested to identify where in Collins this disclosure appears.

Collins discloses a VHF/UHF system where the reactor "itself... is configured in part as a transmission line structure..." (See column 4, lines 30-32 of Collins). In other words, the reactor is like a kind of widened wave duct or hallow conductor. The cathode 32c of Collins (see Fig. 1 of the Collins reference) is described (e.g. at claim 1 of the reference) as a "...cylindrical electrode means..." The system anode is described as comprising "...side walls 12, top wall 13 and/or manifold 27 of the reactor chamber." (Column 5, lines 9-13 of Collins). There is no parallel plate reactor, disclosed, taught or even remotely suggested by Collins.

Collins extensively discusses and illustrates problems regarding high frequencies. Starting at column 6, line 24, Collins explains impedance problems, wave length properties (column 7, lines 3 and following) and standing wave effects (column 8, lines 7-10). Since Collins itself names its reactor "transmission line structure" consequently all statements in Collins are also valid for the reactor.

Interestingly, Collins also makes a statement concerning the size of the substrates to be used at column 7, lines 58-63, and refers to these as being "large wafers...wafers 4-8 inches in diameter." For reference this represents wafers of about 10-20 cm in diameter or 0.1 to 0.2 m, recalling that the present invention requires substrates having the largest diameter of no less than 0.7 m, or more than three times the diameter and therefore more

than nine times the area contemplated by the claimed invention.

So far, thus, it is believed quite clear that the person of ordinary skill in the art would have no way of combining Hanada and Collins to reach the claimed invention.

Collins teaches a frequency range (VHF/UHF) which Hanada does not disclose or favor. Collins and Hanada have different reactor types and both are semi-conductor wafer processing systems, not large area display processing systems as is the present invention. Collins discloses in depth why a "just combine" approach is not obvious since RF problems arise. Adding Collins to Hanada is at best a patch work or mosaic clearly based on hindsight after considering the disclosure and claims of the present application. One skilled in the art would certainly understand that combining the two references would require much more than simply adding and RF generator to Hanada. Collins itself admits (column 2, lines 52 and following) "...it is understood that energy of this frequency has not been used in semi-conductor processing reactors with any degree of success. in part this failure is due to the requirement of very short transmission lines at this range of frequencies and, in general, to the stringent system design requirement for efficient coupling of the energy to the chamber."

Turning now to the further reference to Shang combined by the examiner with Hanada and Collins to reject the claims as being obvious, Shang is relied upon by the examiner for the feature "substrate size larger than 0.7 m in diameter.)

Shang basically discloses a CVD system with a focus on a special susceptor. The system is designed for glass sheets and may be used for PECVD, but the description is somewhat vague for this particular application.

Shang discloses introducing a substrate into the system and placing it on pins

(column 6, lines 29 ff). Afterwards the substrate is lowered into an intermediate position (column 6, lines 35-39) and an inert gas (line 49) plasma is ignited (lines 41, 42) to electrostatically charge the substrate (column 7, line 27 ff). After this, the substrate is lowered into the susceptor and the plasma may be switched off (column 7, lines 10-22).

Shang, only as a side remark, says that this plasma may be continued and be used with disposition gases to deposit a layer on the substrate (column 8, lines 5-15).

The examiner should note that there is no disclosure of deposition gases, RF frequencies or other PECVD properties. Shang discloses and further claims a mechanical feature, a susceptor, which can hold an electrostatically charged substrate essentially flat. This principle works for substrates of different sizes.

The examiner's remark about scaling up or down an apparatus to accommodate the desired substrate size is an oversimplification and ignores the real world reality of the technology of the present invention as well as the technology of Hanada, Collins and Shang. The exercise of scaling a technology up or down is not an arbitrary exercise that ignores the reality of the technology. Otherwise a simple bottle rocket could simply been scaled up to a Saturn V moon rocket.

The applicant and the undersigned sincerely believe that the combination of references cited by the examiner are simply insufficient to render claim 1 obvious in any way contemplated by 35 U.S.C. 103 and that the remaining claims which depend from claim 1, further limit and further distinguish the invention over the prior art.

This includes the withdrawn claims 9-12 which all further limit claim 1 and should be considered.

Claim 2, although independent, should also be considered in view of the foregoing

comments and unified with the remaining claims to avoid an unnecessary proliferation of divisional applications where the prior art is firmly believed to be insufficient to render the claimed invention obvious.

The expert in the filed of large-area coating of substrates would not have combined Collins, Hanada and Shang since the technical teachings, especially the critical points, are either vague or contradictory. Understanding that 35 U.S.C. 103 contemplates viewing the prior art through the eyes of a person with ordinary skill in the field, not even an expert in the field, this makes the combination of Hanada, Shang and Collins even less adequate to render the claimed invention obvious.

All of the claims and the implications are therefore believed to be in condition for allowance.

The examiner is respectfully urged to telephone the undersigned in the interest of reaching a conclusion to the prosecution of this case.

Favorable action is respectfully requested.

Respectfully submitted,

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